

David from S.E. China, where it inhabits "the wooded mountains which separate the provinces of Kiangsi and Fokien," I have not seen specimens; but judging by the description and plate in the 'Ois. de la Chine,' is doubtfully distinct from *P. erythrocnemis*, Gould, of Formosa, from which it appears to differ chiefly in the iris being pale yellow (*D. & O.*), the lower breast and abdomen of an ashy grey, and the head browner, more uniform with the colour of the back, which is of a much brighter chestnut and by the black stripe on the rami of the mandible being hardly traceable. These characters are nearly identical with those by which Swinhoe (*l. c.*) differentiates the young of *P. erythrocnemis*, Gould.

Iris pale yellow; bill blackish brown with the base greyish; tarsi and toes brown; claws grey, with brown tips (*David & Oustalet*).

XI.—Notes on a 'Catalogue of the Accipitres in the British Museum,' by R. Bowdler Sharpe (1874). By J. H. GURNEY.

[Continued from p. 102.]

I THINK it desirable to mention a Malabar specimen of *Spilornis* which has been acquired by the Norwich Museum subsequently to the publication of my last paper, though unfortunately I am not able to give its exact locality, neither do I know the sex of the specimen. It is an adult bird in fresh plumage, very little abraded, and most nearly resembles, as it seems to me, the Bengal specimen presented by Captain Pinwill to the British Museum (*vide antea*, p. 95), though not quite so rufous on the underparts. The crop is much vermiculated; and the chin is black with a slight slaty tinge, and also with a tinge of brown next the throat. From the district where this specimen was obtained, it is interesting to observe that it is quite distinct from *S. spilogaster* of Ceylon, both in the coloration of its underparts, and also in its measurements, which are the following—wing 18·5 inches, tarsus 3·7, middle toe *s. u.* 2.

The genus *Herpetotheres* is the next to which I have to

allude; but I need merely do so, as I have nothing to add to Mr. Sharpe's account of the only species comprised in it, *H. cachinnans*, which, as it seems to me, is the sole representative of the *Circaëtine* group on the continent of America. I therefore pass on to the genus *Circaëtus*, all the species of which are African, and all, as far as is known, except *C. gallicus*, exclusively so.

The geographical range of *C. gallicus** is considerably wider than that of any other species of the genus. A summary of the countries which it inhabits is given in Mr. Sharpe's volume; and fuller details on this head will be found in Mr. Dresser's article on this species in his work on the Birds of Europe, including some particulars of its range "through Central Asia into Northern China," which is not alluded to by Mr. Sharpe, and which has been subsequently also recorded in Prejevalsky's 'Birds of Mongolia' (*vide* 'Ornithological Miscellany,' vol. ii. p. 145), and in David and Oustalet's 'Oiseaux de la Chine,' p. 21.

Proceeding to the consideration of the remaining species of the genus, I may observe that Mr. Sharpe gives the habitat of *C. beaudouini* as "Senegambia and North-Eastern Africa;" but the latter phrase must not be taken in its fullest sense: one of the specimens in the Norwich Museum, obtained from the late MM. Verreaux, was said by those gentlemen to have been obtained in Nubia (as recorded in 'The Ibis' for 1862, p. 213, footnote); but, with this exception, the only North-east African localities for this species with which I am acquainted are those recorded by Von Heuglin, viz. Southern and Eastern Kordofan and Eastern Sennaar†.

In the case of *C. cinerascens*, Mr. Sharpe has omitted to give his usual summary of the localities where this species occurs; and I may therefore mention that it has been met with both in Western and in Eastern Africa. As regards the West, the British and Norwich Museums possess several

* I consider *C. orientalis* of Brehm synonymous with *C. gallicus*, on which point see Mr. Dresser's note in 'The Ibis' for 1875, p. 102.

† *Vide* Ibis, 1860, p. 413, and 'Ornithologie Nordost-Afrika's,' vol. i. p. 86.

specimens from Bissao; and the former collection also contains an adult female obtained in January on the Rio Dande in Angola, which appears to be the only example hitherto obtained in the Portuguese possessions in Western Africa*. In Eastern Africa, south of the equator, this species occurs on the Zambesi, specimens from there being preserved in both the above-named collections; and the British Museum also possesses an adult example from the river Shiré. Its occurrence in Central and Eastern Africa, north of the equator, is thus recorded by Von Heuglin:—"A young female was shot at Bongo, in Central Africa . . . Prince Paul of Würtemberg killed an old male in 1840 on the Blue Nile, rather below the 12th degree, between Rozeres and Fazogl; I received this species from the Quola of West Abyssinia, from the Fudj Mountains, from Bahr el Djebel, and from Bahr Ghazal; . . . I am unable to say whether it is resident; but I met with it throughout the year, except from June to August"†

Mr. Sharpe correctly describes the usual phases of plumage incident to this species; but the Norwich Museum possesses a specimen obtained on the Zambesi by the late Dr. Dickinson, which is evidently in immature dress, with the exception of a few recently acquired adult feathers in the wings and tail, but which differs from the ordinary immature plumage in having the whole of the head, neck, and lower parts of a dark brown, corresponding with the darker portions of the mantle, and only varied by paler tips to the feathers of the side-neck and throat, and by decidedly white tips to those of the tibiæ and under tail-coverts, also by the mingling of a considerable portion of white with the brown of the wing-linings‡. It should likewise be noted that in this specimen the dark feathers of the underparts have no white bases.

The only figure of this species in fully adult plumage which adequately represents the grey tint peculiar to the old bird

* *Conf.* Du Bocage's 'Ornithologie d'Angola,' p. 39.

† *Vide* Ornithologie Nordost-Afrika's, vol. i. pp. 87, 88.

‡ The wing-linings are entirely white in the fully adult bird.

is that given by Müller*; and this, unfortunately somewhat exaggerates it. On the other hand, Von Heuglin's figure in 'The Ibis' for 1860, pl. xv., does not sufficiently show it, and his more recent plate in the 'Ornithologie Nordost Afrika's' exhibits no trace of it.

It may be useful to record the principal measurements of five specimens of this species preserved in the Norwich Museum, as compared with those of a male and female given by Mr. Sharpe.

	Wing. in.	Tail. in.	Tarsus. in.	Middle toe s. u. in.
♂ (Sharpe)	15.0	9.5	3.0	
♀ „	16.1	9.8	3.4	
<i>In the Norwich Museum.</i>				
♂, Bissao	15.4	7.7	2.9	1.9
Sex unknown, Bissao	15.1	8.2	2.9	1.8
„ „	15.3	8.5	3.0	1.8
„ „	15.4	9.1	3.3	2.1
„ Zambesi	15.5	9.0	3.0	1.8

The nearest in size of any species of *Circaëtus* to *C. cinerascens* is *C. fasciolatus*, which has hitherto been obtained only in the colony of Natal—a habitat singularly restricted, especially when compared with the wide geographical ranges of the other species of this genus.

Of this scarce species I know but five examples—the type in the British Museum, two in the Museum at Norwich, and two, from the Upper Umlas, in the collection of Captain Shelley, to whose kindness I am indebted for the loan of of his interesting specimens.

The following are the chief measurements of these five specimens, those of the type being copied from Mr. Sharpe's work :—

	Wing. in.	Tail. in.	Tarsus. in.	Middle toe s. u. in.
Type, in the British Museum, sex unknown	14.6	10.5	3.4	

* *Vide* Description de Nouveaux Oiseaux d'Afrique, pl. 6.

	Wing. in.	Tail. in.	Tarsus. in.	Middle toe s. u. in.
<i>In the Norwich Museum.</i>				
Sex recorded as ♂	15·2	9·7	2·9	1·8
" " ♀	15·4	10·3	2·9	2·0
<i>In the collection of Captain Shelley.</i>				
Sex unknown	15·2	10·0	3·0	1·9
" " 	15·5	9·5	3·0	1·9

On comparing these measurements with those of *C. cinerascens*, it will be seen that the two species are nearly identical in size, but that the average length of the tail is slightly greater in *C. fasciolatus*.

In their markings, however, the two species are very distinct; thus, in *C. fasciolatus*, the white transverse bars on the lower breast, abdomen, and thighs are much broader than in *C. cinerascens*, the white edgings to the upper tail-coverts much more conspicuous, and the arrangement of the transverse bars on the upper surface of the tail entirely different, the conspicuously wide white or whitish space stretching across the middle of the tail in *C. cinerascens* being absent in *C. fasciolatus*, in which species the tail is crossed by from four to five dark bars, with intermediate paler spaces, all of which are much more nearly equidistant from each other than is the case with the bars across the tail in *C. cinerascens*. This distinction may be readily perceived by comparing the figures of the two species, which will be found in 'The Ibis' for 1860, pl. xv., and in that for 1862, pl. iii.

In 'The Ibis' for 1861, at p. 130, I mentioned that in *Circaetus fasciolatus* "the anterior part of the inside of the wing adjacent to the carpal joint is transversely marked with brownish grey bars," alternating with white ones, instead of being white as is the case in the adult of *C. cinerascens*. This description applies to the two specimens in the Norwich Museum, and also to the two in the possession of Captain Shelley; but in Mr. Sharpe's description of the type specimen in the British Museum it is said that the under wing-coverts are white, with "a few markings of pale brown," from which

it would seem that in very old birds they may not impossibly become wholly white, as in *C. cinerascens*; so that this distinction is probably not one to be implicitly relied on.

Under the head *Circaëtus cinereus* Mr. Sharpe unites the greyish brown bird* described by Vieillot under that name, the dark chocolate-brown one to which Rüppell gave the specific name of *funereus*, and the white-bellied form which was called *pectoralis* by Smith, and subsequently *thoracicus* by Lesson.

Assuming this view to be correct, and postponing for the moment the question as to whether it is so or not, I would here remark that I think Mr. Sharpe is hardly accurate in giving as the habitat of the species "the whole of Africa, excepting the forest-region on the west coast," as I am not aware of an instance of this bird, in any of the phases which he includes under the head of *C. cinereus*, having been obtained to the north of the tropic of Cancer.

On the subject of the differences of plumage above alluded to, Mr. Sharpe makes the following remarks at p. 45 of his edition of Layard's 'Birds of South Africa:'—"It should be noted that the adult form of this Harrier-Eagle, with the black breast-band and white under surface, has not yet been met with north of the equator, and it is considered by some ornithologists that two species are confounded under the name of *C. cinereus*."

It seems, however, from the testimony of Schlegel and Von Heuglin, and also of Rüppell, that the white-bellied bird does in reality occur to the north of the equator. Professor Schlegel, who maintains that *C. pectoralis* is specifically distinct from *C. cinereus*, and that the latter is identical with *C. funereus*, mentions a specimen of *C. pectoralis* in the Leyden Museum, under its synonym of *thoracicus*, in the following terms—"Adulte, Sénégal, obtenu de Mr. Frank, 1859" (*vide* 'Muséum d'histoire Naturelle des Pays-Bas,')

* I know not whether Vieillot's type specimen is still in existence; but, from a comparison of the two descriptions and figures, it would seem to have been a decidedly greyer bird than the type of Rüppell's *C. funereus*.

Buteones, p. 24*); and in his supplement to this work (*vide* Accipitres, p. 113), where he very unadvisedly, as I venture to think, unites as one species *C. gallicus*, *C. beaudouini*, and *C. pectoralis*, he again mentions the same specimen, referring to it in the following words:—"Adulte, Sénégal, 1858, dessous en arrière du jabot d'un blanc uniforme, les autres parties plus foncées que d'ordinaire." The latter comparison, no doubt, refers to the colour of the brown portions of the plumage being darker in this specimen than in *C. gallicus*; and the whole description entirely accords with the appearance of the adult *C. pectoralis*.

Von Heuglin, who agrees with Schlegel in considering *C. pectoralis* specifically distinct from *C. cinereus*, and the latter identical with *C. funereus*, describes the former, under the specific name of *thoracicus*, at p. 84 of vol. i. of his 'Ornithologie Nordost-Afrika's,' in exact accordance with adult South-African specimens, and adds some remarks respecting the localities where he met with it, of which the following is a translation:—"The Pectoral Serpent-Eagle is not very frequent in the warmer parts of North-eastern and Central Africa; its most northern limit is, I believe, the Province of Dongola (Argo Island, August 1852); we obtained it in Abyssinia, on the Blue and the White Nile, and in Kordofan, but only from after the rainfall until the early spring."

Under the head of *C. cinereus*, Von Heuglin remarks, at p. 85 of the volume already quoted, "Verreaux explains the whole-coloured Serpent-Eagle as the young of *C. thoracicus*†, with which view neither Schlegel, Von Pelzeln, nor I agree; the former is always larger, and has strikingly larger and stronger talons. We have examined many eastern and southern specimens, and the above comparison always holds good;

* In the succeeding page Prof. Schlegel makes the following remark, under the head of *C. cinereus*:—"Taille plus forte et pieds beaucoup plus vigoureux que dans les autres espèces connues . . . c'est décidément une espèce particulière, dont j'ai encore examiné des individus aux musées de Berlin et de Francfort."

† *Conf. Ibis*, 1862, p. 209.

nor do we see any intermediate stage between *C. cinereus* and *C. thoracicus*. The markings of the tail, however, do vary somewhat: the bars are sometimes narrower, sometimes broader, here and there more sharply defined, elsewhere more obsolete, in some parts lighter, almost pure white, in others shaded with smoky grey. The whole-coloured Serpent-Eagle occurs but rarely in North-eastern Africa; we found it in winter in the Quola of Western Abyssinia and, at about the same time of year, on the Upper White and Blue Nile; and we also saw a bird, certainly of this species, in the low lands between Semién and Wogara in Abyssinia. Antinori found it in December near Dokah, in East Sennaar; according to Rüppell it occurs occasionally in Abyssinia”*.

I propose now to refer to some South-African specimens which I have recently examined, and which appear to me to illustrate the changes of plumage ordinarily incident to the white-bellied bird, to which, for the sake of distinction, I will provisionally apply Sir A. Smith's specific name of *pectoralis*; and I will number these specimens as I proceed, for the convenience of reference, tracing the changes from the nestling-plumage to that of the fully adult bird.

(No. 1.) The youngest specimen that I have seen† is a male from Kuruman, in the collection of Captain Shelley, which exhibits on many of the rectrices the elongation of the shaft beyond the web which is so frequent in very young birds, one of which even now retains a slight downy tip, whilst several of the primaries are still enclosed at the base in the sheath indicative of a growing feather. Notwithstanding these appearances I think it probable that this bird had left the nest for some weeks, as the margins of the fea-

* Rüppell speaks of “*Circaëtus thoracicus*, Cuv., = *pectoralis*, Smith,” as “frequent in Abyssinia,” and of “*C. cinereus*, Vieill., = *funereus*,” as “occasional in Abyssinia;” vide ‘Systematische Uebersicht,’ p. 10.

† A still younger specimen unfortunately escaped my recollection till after the above was in the printer's hands; it is preserved in the Museum at Cambridge, where I examined it and made the following memorandum respecting it:—“Nestling, with much down remaining; under surface wholly cinnamon-brown; upper surface similar, but with blackish brown centres to the feathers.”

thers of the mantle are already somewhat abraded, though very much less so than in other more advanced young specimens with which I have compared it, and in which these margins are absolutely worn off, the plumage of all the *Circaëti* being exceedingly subject to deterioration from use before it is renewed by a change of feathers. The coloration of the example now under consideration agrees with that described by Mr. Sharpe as "young," with the following modifications:—The fulvous edgings of the upper parts are relatively broadest on the interscapular feathers and narrowest on the wing-coverts; the under surface (except the throat) is decidedly rufous, and of a darker and richer tinge than in any other fulvous or rufescent specimen that I have examined, and is whole-coloured, except on the tibiæ and abdomen, where the white bases of the feathers are apparent, and where most of the feathers are also narrowly tipped with white; the feathers of the under tail-coverts are rufous, but are similarly tipped; in the wing-linings the smallest under-coverts are rufous, the median the same, mingled with white, and the largest wholly white, except a subterminal transverse bar of pale brown; the axillaries rufous, barred irregularly with white; the posterior primaries and secondaries are dark purplish brown, narrowly tipped with fulvous, and in both the primaries and the secondaries the upper part of the inner web is white, crossed with two more or less perfect bars of dark brown on the primaries, and four on the secondaries; the tail is dark brown, paler on the inner webs of all the rectrices, except the central pair, and crossed with five somewhat indistinct and ill-defined bars of a still darker brown, the last bar being subterminal, and succeeded by a very narrow whitish tip*.

* It may be desirable to compare the above particulars with Sir A. Smith's remarks on the young bird, comprised in his original description of *Circaëtus pectoralis* at p. 109 of the 1st volume of the 'South-African Quarterly Journal;' and as that volume is very scarce, I annex a copy of the passage in question:—

"*Young.* When it leaves the egg it is covered with a dense white down, which, after a few months, is concealed by an uniform light chestnut, or a dull earthy brown plumage. I have met with young specimens of this

(No. 2.) The Norwich Museum possesses a specimen, shot near Potchefstroom on 20th July, which is evidently in the same stage of plumage as No. 1, but much more worn and abraded. In this example the abrasion of the margins has removed all rufous tint from the upper parts, except some very slight remains of it on the lesser wing-coverts; on the lower parts the rufous plumage remains as in No. 1, but is much paler, and evidently faded; the feathers of the under tail-coverts are also for the most part white; no white tips are visible on the abdominal and tibial feathers, having probably been worn off; the tail is greyish brown, with five extremely indistinct darker transverse bars just perceptible on the middle rectrices, and four similar bars, more plainly distinguishable, on the paler inner webs of the remaining tail-feathers. The primaries and secondaries are similarly coloured to those of No. 1; but the inner webs are on the greater portion of their surface pure white, and without transverse markings, except in the case of a single secondary feather, apparently more recently acquired, in which the dark portion is rather deep grey, as in the adult bird, with three dark transverse bars crossing the whole of the outer web and the adjacent parts of the inner one. Mr. Ayres, who obtained this specimen, records the colour of the irides as "light gamboge-yellow."

The next stage appears to be attained by the acquisition of new feathers on the under, but, judging from the specimens

species of both colours, which might possibly have been different sexes. The primary quill-feathers are the same as in old birds; but the secondaries are less distinctly banded, and the proportion of the white in the bands is smaller, or, indeed, almost wanting, grey being the prevailing colour; the tips are white. The tail is banded; but the colours are in a reversed proportion, dark brownish black or black being the most abundant or ground-hue, and reddish white the most scanty. The latter occurs in the form of narrow transverse bands, about four or five on each feather; and the tips of all have, besides, a narrow edging of dusky white. The tail is also considerably longer in young specimens than in older ones. Legs and toes shaded with brown; claws nearly black; bill dark horn-coloured, shaded with yellow; eyes yellow; length of tail $10\frac{1}{2}$ inches."

I have examined, not on the upper surface, or, if at all, very partially so. It is distinguished by the breast, abdomen, and under tail-coverts becoming transversely marked by rows of wood-brown spots on a white ground, producing a considerable resemblance to the immature plumage of *C. gallicus*, as has been already observed by Schlegel and by Von Heuglin in their respective notes on this species, to which I have already referred; the late Jules Verreaux states that he has watched the change from this to the fully adult dress in specimens kept in confinement*.

(No. 3.) The most perfect instance of this phase of plumage which has come under my notice is exhibited in a South-African specimen preserved in the Liverpool Museum, which might almost pass for an example of *C. gallicus*.

The Norwich Museum also possesses some interesting specimens which are more or less completely in this stage, and which it may be desirable briefly to describe, as tending to elucidate the gradual assumption and subsequent loss of the transverse rows of brown spots on the lower surface by which this intermediate condition of plumage is especially characterized.

(No. 4.) One of these specimens, now preserved at Norwich, was obtained in South Africa by the late Sir A. Smith, and, from its appearance, seems to have been kept in confinement. It is in similar plumage to No. 2, except that the tail-feathers and most of the secondaries have already attained the deep grey tint, with dark transverse bars, which is characteristic of the adult bird; but my chief reason for referring to this specimen is to mention the circumstance of four apparently new feathers being visible among the older fulvous plumage of the left side of the breast: these four feathers are dark brown; but all of them have white bases, and two of them also have white tips. Here, if I mistake not, we have the commencement of the intermediate stage of plumage to which I have just referred.

(No. 5.) The next specimen which I propose to notice is a male, obtained by Mr. Ayres near Potchefstroom on 24th

* *Vide* Ibis, 1862, p. 209.

April. In this bird the coloration of the upper surface is very similar to that of No. 2, but is rather darker, owing to the appearance on the back of several new feathers of a deep purplish brown, with narrow and inconspicuous pale brown tips. The primaries and secondaries resemble those of No. 2; but some of the secondaries are transversely marked on the inner web as in No. 1. The tail is dark brown, with a very narrow paler tip, but with no signs of transverse bars, except some extremely indistinct indications of such markings on the two outermost rectrices on one side of the tail only. The wing-linings and axillaries resemble in coloration and markings those of No. 1; the remaining underparts are like those of No. 2, with the following exceptions: viz. the feathers of the upper breast are decidedly browner, and their shaft-marks are darker and more conspicuous; on the lower breast the feathers appear to be new, with pure white bases comprising the greater part of the feather, the remainder being occupied by a transverse brown mark, slightly tinged with fulvous, and about half an inch in depth, below which a very narrow white tip to the feather is apparent; on the rest of the underparts the feathers, which do not appear to have been renewed, are rather more rufous than in No. 2, but are irregularly crossed and varied with white. Mr. Ayres noted the irides of this specimen as "bright gamboge-yellow."

(No. 6.) Another specimen from the same locality, shot 16th July, is in similar plumage to No. 5, but somewhat more advanced. The upper parts resemble in their coloration those of No. 5; but the wing- and tail-feathers are transversely marked, as in the adult, except that the tail is crossed by five dark bars instead of four, and the interspaces between the dark bars on the outer webs of the secondaries are deep purplish brown instead of brownish grey. The wing-linings of this specimen resemble those of No. 5; the axillary feathers appear to be partly old and partly new, the former being rufous, barred with white, and the latter wholly white, with the exception of a subterminal spot of wood-brown. There is much more white on the remainder of the underparts than in No. 5, especially on the abdomen and tibiæ; and the inter-

vening rufous plumage is much paler in hue and more restricted in extent. Some new feathers on the sides of the breast are marked similarly to the corresponding new feathers in No. 5 ; but the brown spot upon them is rather larger, and without any tinge of fulvous. Similar spots are also visible on the under tail-coverts ; but these differ from the breast-spots in being divided by the shaft-mark, which is white where it passes through these spots, but brown where it intersects the spots on the breast. The irides in this specimen were " bright pale gamboge-yellow."

(No. 7.) A female shot near Potchefstroom on 30th July is still more advanced. In this specimen the upper surface is as in No. 6, but with a larger proportion of new dark brown feathers ; the interspaces between the dark transverse bars on the secondaries are tinged with deep grey, as in the adult ; on the upper breast indications of the commencement of the adult plastron are visible—brown feathers with white bases, but with the brown not so dark as in the adult bird, being massed on the sides of the breast : the two patches of brown thus arranged on either side of the upper breast are divided by a longitudinal interval in which the feathers are white, with only a brown central spot, formed by the widening of the dark shaft-mark. The transverse brown spots on the white ground of the lower breast and abdomen are visible, especially on the former, but are more or less pale, and apparently fading out ; on the flanks and tibiæ they are darker, and, with the exception of those on the upper portion of the flanks, are divided by a white shaft-mark. The axillaries are, for the most part, wholly white ; but some of them are slightly spotted with brown. The least under wing-coverts are white, with a brown centre to each feather, the remainder of the wing-lining being entirely white, as are also the under tail-coverts. The irides in this specimen, as noted by Mr. Ayres, were " light gamboge-yellow."

(No. 8.) Another female shot near Potchefstroom, in August, may be said to have attained the adult plumage, with the following exceptions, viz. :—A few of the feathers in the centre of the plastron have not only the bases

white, but the sides also ; three feathers about the centre of the upper breast, and one on the abdomen, show a pale brown subterminal mark ; almost all the feathers on the sides of the breast have similar marks, but of a much darker brown ; and on some of these feathers the brown mark is divided by a white shaft-mark ; similar spots, also thus divided, are conspicuous on the under tail-coverts ; the axillaries and wing-linings, which are pure white in the fully adult bird, are in this specimen spotted with brown, very much as in No. 7, but the spots are less regularly disposed.

(No. 9.) A female shot in the same locality on June 25th is in adult plumage, with the exception of two small dark spots still remaining on the white under surface—one on the breast, and the other on the abdomen ; Mr. Ayres notes the colour of the irides in this example as “dark gamboge-yellow.”

(No. 10.) Another female, also shot near Potchefstroom in June, is entirely adult, and, according to Mr. Ayres's note, had the irides “bright yellow.”

(No. 11.) A specimen from the Cape colony, otherwise in fully adult plumage, is remarkable for having the plastron longitudinally divided by white-edged feathers, as is the case in No. 7 ; but in the present specimen the space occupied by this division is considerably narrower than in No. 7, no doubt from the bird being older. I have already noticed the slight remains of a similar division in the plastron of No. 8 ; and it is curious that, though No. 8 is obviously a more immature bird than No. 11, yet in this particular item, but in this only, its change of plumage is more advanced than that of No. 11, showing that the different changes do not always progress *pari passu* in different individuals.

Of the eleven specimens just referred to, all, except Nos. 1 and 3, are preserved in the Norwich Museum.

While some allowance must be made for individual variation in immature specimens, I think it may be safely assumed that the series above described fairly represents the ordinary changes incident to the white-bellied *Circaëtus* (*C. pectoralis*

of Smith) in its progress from the nestling-plumage to the fully adult dress.

In addition to the phases of plumage to which I have above alluded, South-African specimens occur the plumage of which is fuliginous above and below, but with white bases to the feathers of the under surface, and with the wing-linings partly fuliginous and partly white. Mr. Sharpe terms this plumage "mature;" but if this phrase is intended to imply that every individual at a certain age attains it, I must express my dissent from such a conclusion, as I believe it to be an exceptional and quasi-melanistic variety, if, indeed, it be not referable, as Rüppell, Schlegel, and Von Heuglin suppose, to a distinct species and, as such, specially entitled to have the specific name of *cinereus*.

In MM. Verreaux and des Murs's notice of "*Circaetus thoracicus*," at p. 209 of 'The Ibis' for 1862, reference is made to dark-coloured nestlings in the following words (probably based on information obtained by the late Jules Verreaux during his travels in South Africa):—"le jeune, au sortir du nid, est en effet *brun-enfumé*."

That rufescent nestlings of *C. pectoralis* also occur is certain; and Sir A. Smith, in his account of that species, from which I have already quoted, appears to refer to two distinct phases of nestling-plumage, describing them as "uniform light chestnut or a dull earthy brown." I therefore doubt not that the fuliginous specimens, which sometimes occur, have worn that garb from the time of leaving the nest, and have never passed through the fulvous or rufescent stage by which other nestlings are distinguished—and that this is equally true, whether they are in reality a melanistic phase of *C. pectoralis* or specifically distinct.

It would seem that the white bases to the feathers of the underparts do not exist in all fuliginous specimens, as I have seen three such in which they are absent: two of these, from Nubia and Bissao respectively, are preserved in the Norwich Museum, and are the only specimens of *C. cinereus* which I have recently been able to examine from any locality north of the equator; the third is from the Humbe, in Southern

Benguela, and is in the possession of Captain Shelley, to whose kindness I am indebted for the opportunity of comparing it with the similar specimens from Nubia and Bissao above referred to.

Du Bocage, at p. 34 of the first volume of his recent work on the Ornithology of Angola, describes, under the head of *Circaëtus cinereus*, two females, one from Maconjo, the other from the Humbe, as having "pas d'espace blanc à la base des plumes du dos et des régions inférieures;" but I have not observed any notice of this peculiarity in the writings of any other ornithologist.

I propose now to allude to some fuliginous specimens, which I have examined, with white bases to the feathers of the lower surface, and subsequently to the three just mentioned, which do not exhibit this peculiarity.

(No. 12.) This is a specimen from Natal in the Norwich Museum, which, in its general aspect, including the markings on the tail, agrees well with the description and figure of Rüppell's *Circaëtus funereus* (*vide* 'Neue Wirbelthiere,' p. 35, pl. 14); the three narrow pale transverse bands on the upper surface of the tail, however, are whitish brown rather than red-grey ("roth-grauen"), as described by Rüppell. In this specimen these pale bars are lighter on the inner than on the outer web of all the rectrices, except the central pair, but the intervening and much broader dark spaces are equally deep-coloured on both webs. One pair of rectrices are evidently of more recent growth than the remainder, from which, however, they do not differ in markings, or, if allowance be made for some fading, in the coloration of the older feathers. The upper tail-coverts are narrowly tipped with white; and on most of the feathers composing them there is also a white spot on the outer web near the base, which latter is brown; on others there are two such spots, one on each side of the shaft; while in a few cases the feather has no white on it except at the tip. I may add that white tips to these feathers, and also white bases, are usual in the adults of the white-bellied race (*C. pectoralis*), but in only one such specimen (No. 11) have I met with similar white spots on these

feathers isolated from the white bases. In the fuliginous bird to which I am now referring, the secondaries are tipped with white, and the primaries also, but more narrowly, in both which respects they resemble those of the adult *C. pectoralis*—but, unlike them, without any trace of transverse bars; the outer webs being merely mottled irregularly with white. Some newly acquired secondary feathers resemble the older ones in all respects; several new feathers which are apparent in the mantle similarly resemble in character the older feathers by which they are surrounded. The wing-linings are fuliginous, but much varied with white, especially in proximity to the metacarpus; the axillaries are pale fuliginous; the feathers on the under surface of the body are a darker fuliginous, with irregular white bases, except on the flanks, tibiae, and under tail-coverts; the new feathers on the breast and abdomen, of which many are apparent, only differ from the older ones in the latter being paler, from fading; the under tail-coverts are fuliginous, with white tips and two white transverse bars, which on some of the feathers are broken into two white spots, one on either side of the shaft.

(No. 13.) This is also a specimen from Natal, and is preserved in the Liverpool Museum; it agrees generally with No. 12, and, like it, has three narrow whitish bars across the tail, besides the white tip; the upper tail-coverts exhibit from two to three narrow white transverse bars and a white tip.

(No. 14.) A dark newly moulted bird from Natal, in the British Museum, is very similar to Nos. 12 and 13; but the tail has only two light narrow transverse bars, exclusive of the pale tip; many of the abdominal feathers exhibit two brown spots on the white base, one on each side of the shaft.

(No. 15.) A South-African specimen, also in the British Museum, resembles No. 14, but is rather less darkly coloured; it has a less proportion of white on the bases of the abdominal feathers, and none on the under tail-coverts. There are four narrow pale bars on the tail, besides the tip; but the uppermost one is imperfect.

(No. 16.) A fuliginous specimen in the Museum at Brussels has five narrow pale bars on the tail; but in this also the

uppermost bar is imperfect. When I examined this specimen I unfortunately omitted to ascertain whether it had the bases of the pectoral and abdominal feathers white; and I am also unable to say in what part of Africa it was obtained.

(No. 17.) A fuliginous example from Bissao, in the Norwich Museum, marked by the late MM. Verreaux as a female, only differs from No. 12 in the following particulars, viz. :—there are no white bases to the feathers of the under surface, and no white tips or markings on the under tail-coverts; the narrow transverse markings on the tail, which agree in number and character with those of No. 12, are, with the exception of the whitish tip, greyer on the middle pair of rectrices and on the outer webs of the remaining tail-feathers; in the wing-linings the smaller under-coverts are wholly fuliginous; but some feathers of the larger under-coverts are entirely a greyish white; none of the feathers in the wing-linings are particoloured. In this specimen many new feathers are appearing, both on the mantle and on the under surface, which entirely resemble the older feathers, allowing for the latter being somewhat faded.

(No. 18.) A similar specimen from Nubia, in the Norwich Museum, agrees with No. 17 in all respects, except that the under tail-coverts are marked with white, as in No. 12, and the white tips to the upper tail-coverts are more conspicuous than in No. 17; also the colour of the narrow transverse bands on the tail corresponds with those on the tail of No. 12; several of the feathers on the underparts have been recently acquired, and agree in colour with the older feathers, allowing, as before, for some fading of the latter.

(No. 19.) Captain Shelley's fuliginous female from the Humbe, in Benguela, also agrees with No. 17; but the uppermost pale narrow bar on the tail is less perfect; two new rectrices resemble the older ones in their markings; but the pale bars on the new rectrices are grey, as in No. 17, and on the older ones browner, as in No. 12. This specimen is in moult, both above and below; and the same remark which I have made as to the similarity of colour in the old and new feathers in Nos. 12, 17, and 18 applies in this instance

also. The iris in this specimen is noted as yellow. This is the only fuliginous example I have examined in which the colour of the iris has been recorded; but I observe that Von Heuglin (*loc. cit.*) indicates a difference of tint in the irides of the two races, describing *C. pectoralis* as "iride flavissimâ," and *C. cinereus* as "iride fulvescente;" the irides in the type specimen of Rüppell's *C. funereus* were described by him as chestnut-brown ("kastanienbraun").

I annex some notes of comparative measurements which I have taken from sundry specimens of *C. pectoralis* and *C. cinereus*; these data relate to as many specimens as the memoranda in my possession enable me to include in this comparison:—

	inches.
Wing in 16 specimens of <i>C. pectoralis</i> varies from	20·5–22·7
„ in 8 „ <i>C. cinereus</i> „ „	19·2–22·5
Tarsus in 18 specimens of <i>C. pectoralis</i> varies from	3·4– 3·7
„ in 8 „ <i>C. cinereus</i> „ „	3·5– 4·1
Middle toe <i>s. u.</i> in 18 specimens of <i>C. pectoralis</i> varies from..	1·6– 2·2
„ in 8 „ <i>C. cinereus</i> „ „ ..	1·9– 2·4
Culmen, exclusive of cere—	
in 10 specimens of <i>C. pectoralis</i> varies from	1·5– 1·7
in 5 „ <i>C. cinereus</i> „ „	1·9– 2·1

It will be seen from the above figures that in the specimens I have examined the measurements of the culmen in *C. cinereus* constantly exceed those in *C. pectoralis*, and that the same excess of size occasionally obtains also in the tarsus and middle toe; and this fact, which, to a certain extent, accords with the observations of Rüppell and Von Heuglin*, seems difficult to account for if *C. pectoralis* and *C. cinereus* be really but one and the same species.

Although Von Heuglin speaks of the transverse bars on the tail as varying in different specimens of *C. cinereus*, and although, as already noted, I have myself found their number to be somewhat uncertain, yet the narrowness of the pale bars, averaging, I think, rather less than half an inch in

* These authors appear to regard the excess of size in the tarsus in *C. cinereus* as more constant than I have found it.

depth, seems to be a constant character, and is one which I have not met with in any stage of *C. pectoralis*.

The moulting specimens of *C. cinereus*, to which I have alluded, show indisputably that the fuliginous colour of the body-plumage is retained for more than one suit of feathers; but, on the other hand, the white bases to the pectoral and abdominal feathers of some specimens, and also the white mingled with the fuliginous plumage in the wing-linings, look very like an approach towards the white-bellied adult plumage of *C. pectoralis*.

At the risk, I fear, of being too prolix, I have put together such facts as I have been able to collect on the curious subject of the changes incident to *C. pectoralis*, and of the possible specific distinction between it and *C. cinereus*; and it is to be hoped that naturalists in Africa will be able, by further observations, to settle the latter question, which must, for the present, remain an open one. I would add that it will be especially desirable to ascertain whether the fuliginous birds always pair between themselves, or whether they sometimes interbreed with those that are white-bellied—also to ascertain the first plumage of their young, and whether fuliginous nestlings are ever really produced, as has been asserted, from white-bellied parents.

I must postpone to my next paper the consideration of the genus *Helotarsus*, with which I hope to complete my review of the Circaëtine group.

[To be continued.]

XII.—*Revision of the Species of the Cotingine Genus Pipreola.*

By P. L. SCLATER, M.A., Ph.D., F.R.S.

(Plate VI.)

IN 1849 Lafresnaye* conceived the idea of separating the Green Cotingas, allied to *Ampelis viridis*, Lafr. et D'Orb., into a subgenus, for which he proposed the name *Pyrrho-*

* In his commentary on Tschudi's 'Fauna Peruana,' Rev. Zool. 1849, p. 103.